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BY MARY K. PRATT

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Pushing the Right Buttons 22

COVER STORY The CIO at Schindler is using digital tools—sensors, analytics, mobile—to take the No. 2 elevator company to the top

BY MARY K. PRATT



CIO Michael Nilles says Schindler Group is using technology "to deliver a superior customer service experience."

AUFZUG IM BRANDFALL NICHT BENUTZEN



FROM THE
EDITOR IN CHIEF

start

Our Farewell Issue

A few years ago at one of our CIO events, one of the speakers was wrapping up a talk about leading big-data projects, which happened to be the subject of our cover story that month. Gesturing toward the scattered piles of *CIO* magazines, she graciously suggested everyone make sure to read “the excellent story in those pamphlets on your tables.” I saw a number of sympathetic grins from CIOs in the audience as I got up to thank her. “Lady, that’s no pamphlet,” I said lightly. “That’s my magazine!”

We’ve known for a long time that the light in *CIO* magazine’s tunnel wasn’t sunshine. Media companies have been aggressively driving the digital train for the past decade, welcoming on board the advertisers that once fueled the robustly profitable business model for print magazines. The good news is that CIO’s brand is thriving in all the right markets: IT leadership events, online and custom publishing. But our days in print are done.

Reading our final cover story (“Pushing the Right Buttons,” page 22), I was struck by the conviction that digital transformation is now common ground for us all, no matter your business or industry.

At \$9.3 billion Schindler Group, the transition started in 2009 under CIO Michael Nilles’ leadership. Today, the elevator company’s digital organization is just as critical as its mechanical one. While the Internet of Things and mobile technologies play starring roles, Nilles says Schindler’s transformation is less about specific technologies and more about changing “your business model to stay at the forefront of your industry.”

Bringing IT leaders to the forefront of the business landscape has been our core mission since *CIO*’s first issue in September 1987. We’ve chronicled your career journeys. We’ve tracked your C-suite successes and failures. We’ve advocated for your expanding role in shaping business strategy.

We are forever grateful that so many of you shared your stories with us over the years. But ultimately, your greatest source of knowledge, strength and wisdom is each other.

My parting advice is this: Stay active in your IT leadership community. Attend as many CIO events as you can. On CIO.com, follow Senior Writer Clint Boulton’s stories. And sign up for our Insider program (www.cio.com/insider), where our talented Executive Editor, Mitch Betts, will keep you supplied with the kind of in-depth articles, expert advice and research insights you’ve come to expect from a magazine devoted to your success.

Take care and stay in touch. Fondly, as always...

Maryfran Johnson, Editor in Chief, *CIO* Magazine & Events
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CHATTER

Prep for Freelance Talent

CIOs will soon come face to face with the so-called “**gig economy**,” as many **millennials** join the workforce not as employees but as freelancers, according to “**The Open Talent Economy**,” a recent report by Deloitte Consulting. “The **evolving workforce** is a mixture of employees, contractors, freelancers and—increasingly—people with **no formal ties** to your enterprise at all,” the report says. **IT departments**, on the front lines of this trend, will need to adapt **personnel, compensation and training** practices to accommodate more **freelance talent**, Deloitte says. www.cio.com/article/2984454/

Blowing the Whistle

You’d think companies would want employees to report their concerns about **internal data security risks** to managers, but often these employees **face retaliation**. Typically the employee writes a long email about the risk and is promptly told to “not be stupid and **not write stuff down**,” says attorney Debra Katz. She says **ignoring whistleblowers** could lead to big problems, including costly data breaches and SEC fines. The SEC encourages whistleblowers to come forward by giving them **10 to 30 percent** of the imposed fine. www.cio.com/article/2985780/

Pick Up the Pace

Your IT department, despite good intentions, is **too slow at delivering** the goods to business units, says columnist Bob Lewis. He says the “**bad habits**” that produce a sluggish pace include overbearing **governance committees**, too much cost-cutting, insisting on completely **bulletproof systems**, and a culture of **complacency**. www.cio.com/article/2982587/

Have a comment about a story in this issue? Go to www.cio.com/magazine or write to letters@cio.com.

GOVERNANCE IN THE AGE OF DATA DISCOVERY:

Delivering Trust and Transparency at Business Speed

SOUTHARD JONES
Vice President of
Product Strategy
at Birst

Jones is responsible for the company's go-to-market strategy, product and competitive positioning, and strategic projects.

LINE-OF-BUSINESS WORKERS OFTEN OPT FOR AGILITY OVER PROCESS

Digital technology and the explosion of data are combining to offer enterprises the opportunity to make smarter decisions at lightning speed. But the need to increase flexibility and agility, along with the challenges of analyzing huge amounts of data for patterns and meaning, is outpacing the capabilities of traditional business intelligence (BI) platforms.

As a result, frustrated enterprise employees are taking matters into their own hands, extending the "BYO" ethos from mobile devices and cloud storage to desktop-based data discovery and user-friendly visualization software.

The Trouble with DIY BI

Not surprisingly, there are problems with the DIY approach: First, it can lead to data silos and incomplete data. What happens when different sales managers or financial planners are working with two different (and incomplete) data sets, each using a different BI tool? The likely result is confusion and (eventually) poor decisions. As Gartner analyst Cindi Howson notes, "Without appropriate processes and governance, self-service capabilities can introduce multiple versions of the truth, increase errors in reporting and leave companies exposed to inconsistent information."

Secondly, although they are user-friendly, many BI tools used by line-of-business workers have created genuine data governance challenges in the areas of regulatory compliance, privacy and security.

Given a choice between being able to do their job more effectively and adhering to enterprise data governance policies, line-of-business workers often opt for agility over process. Understandably, they want to help the enterprise achieve its business goals while also succeeding professionally.

Transparency Governs Great BI

This puts the responsibility for data governance in the age of user-empowering BI tools right back in the hands of IT leaders—who simply don't have the luxury of dismissing concerns about data security, user privacy or compliance. Yet, governance cannot be allowed to strangle data discovery and analytics efforts.

What's needed is a flexible governance model that can accommodate a range of use cases and scenarios involving various levels of data integrity, security and usability. Flexible data governance isn't about making

trade-offs between agility (enabling employees to analyze data rapidly and from anywhere) and governance (ensuring data integrity). Instead, the "transparent governance" model meets local data requests as quickly as necessary but with a level of trust that meets business and regulatory requirements.

A New BI Architecture Emerges

Satisfying the needs of end users while preserving a trusted view of enterprise data demands modern BI architectures that (1) support transparent governance at the speed desired by the business and (2) provide a networked view of data without restricting the autonomy of discovery-centric employees.

"Networked BI" creates a network of interwoven BI instances that share a common analytical fabric. This enables organizations to expand the use of BI across multiple regions, departments and customers in a more agile way and empowers these decentralized groups to augment the global analytical fabric with their own local data. The result is enterprise-grade scalability at unprecedented speed and end user freedom with self-service data preparation capabilities and transparent governance.

Transparent governance in the era of DIY data discovery can be applied in both a *centralized* (top-down) and *decentralized* (bottom-up) approach. In the former case, the sharing of sales- and lead-generation data by several departments to determine financial projections would necessitate centralized control. For line-of-business employees who merely want "snapshots" of data for initial assessments of marketing campaigns, a decentralized approach is ideal.

IT decision-makers shopping for a modern BI solution should look for platforms that include several capabilities, such as ease of use, access and sharing; the ability to network across all data sets; multilevel security; and transparency at business speed.

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FROM THE PUBLISHER

Our Digital Leap

CIO is taking a huge step in its own digital transformation with this issue, our final edition of *CIO* in print. I've been in high-tech media since 2000, and one of my goals starting out was to become publisher of *CIO*. I was fortunate enough to achieve this in 2009. I want to thank all of you for being such loyal readers and active participants in our success over the years. Even more importantly, I want to reassure you that we'll continue providing great business technology content for the IT leadership community.

CIO's Maryfran Johnson and I will continue hosting our series of nine regional CIO Perspectives events, and each August we'll honor 100 of the most innovative IT organizations at our annual CIO 100 Symposium and Awards ceremony. On CIO.com, our writers and editors will continue covering a wide range of enterprise technologies, emerging trends and management issues, along with the leadership and strategy stories that made *CIO* so influential with all of you.

As a brand, CIO also hosts more than 150 custom events each year, smaller gatherings where we discuss business and IT issues and compare enterprise strategies. I encourage you to attend these intimate get-togethers when we come to your cities. I've moderated dozens of these sessions and have always been impressed by the high level of learning, sharing and camaraderie among CIOs and other IT leaders.

Other great ways to stay connected are to sign up for our CIO Insider newsletter (www.cio.com/newsletters/signup) or join our Insider program (www.cio.com/insider), which provides premium content such as in-depth articles, expert advice and research reports.

I know this leap to digital is a shift in the way you think about *CIO*. Most, if not all, of the print magazines in tech media have closed their doors in recent years, and we bucked the trend to go all-digital longer than most.

But we've written and talked about digital transformation so much over the past few years, it's time for us to participate in the same challenges and successes our readers are experiencing. I believe the interactions we have through our online offerings—and the face-to-face relationships we enjoy at our events—will keep our connection with the CIO community strong. Providing CIOs with value will always be our primary mission.

As always, I'd love to hear from you, and I look forward to our ongoing conversations about leadership, change and the future.

Adam Dennison, SVP & Publisher
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BUSINESS TECHNOLOGY LEADERSHIP

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Low-Cost Training

Try these ideas for stretching your IT training budget to develop employee skills

1 **Split training costs with employees.** Some IT departments offer a menu of courses or certifications from which employees can choose, coupled with partial reimbursement plans. Offer more financial support for must-have skills, less for others.

2 **Negotiate group-rate discounts** for online or classroom courses from training companies. Some offer subscriptions to their entire training libraries on a per-seat, per-month basis.

3 **Assemble employee study groups and resources.** Set up a wiki or online forums, and encourage employees to share their best resources, learning materials and study techniques.

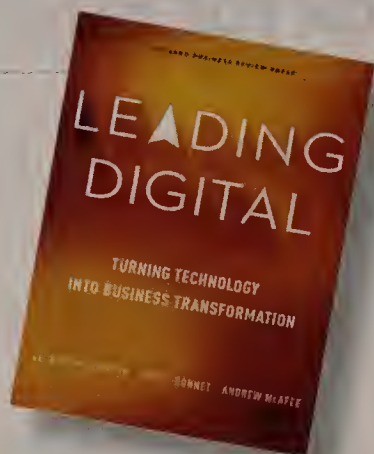
—Ed Tittel



For more tips, see: www.cio.com/article/2839249/



WORTH READING



BOOK Leading Digital: Turning Technology Into Business Transformation
By George Westerman, Didier Bonnet and Andrew McAfee

Unclear what makes a digital enterprise? The authors explain how any company, with sharp investment and leadership, can become a “digital master”—and be 29 percent more profitable than its peers. *Harvard Business Review Press, \$32*

quick FIX



How can I excel as a poised and powerful presenter?

ALWAYS prepare. You won't get your points across if you mumble and stumble as you speak. Preparation will help you convey confidence and competence. Rehearsing the presentation—out loud—will alert you to words you trip over, ideas that sound awkward and slides that distract from your objective. If your first exposure to your presentation is when you deliver it, your audience will notice the rough edges. And they won't be impressed.

SOMETIMES you will feel nervous, but rest assured you're not alone. Many CEOs, professors, consultants and leaders of all kinds feel anxious before or during their presentations. Fortunately, that anxiety is actually a plus. By harnessing it rather than attempting to suppress it, you'll give a more dynamic, energetic presentation, thereby masking evidence of your nervousness. Your insides may be playing hopscotch, but your listeners will never know. Presentation anxiety, it turns out, is a powerful tool.

NEVER read your presentation unless required to do so by legal or corporate mandates. Few people can read from a script without sounding stilted. In any case, the audience will find it insulting to be read to. Aim to know your presentation well enough that you can speak conversationally, using notes as needed but not reading them. Similarly, if you'll be using slides, do not read your slides. Limit each slide to just a few words—avoid sentences altogether—and use that text to remind you of what you want to say.

Naomi Karten (www.nkarten.com) is the author of numerous books and e-books, including *Presentation Skills for Technical Professionals: Achieving Excellence*.

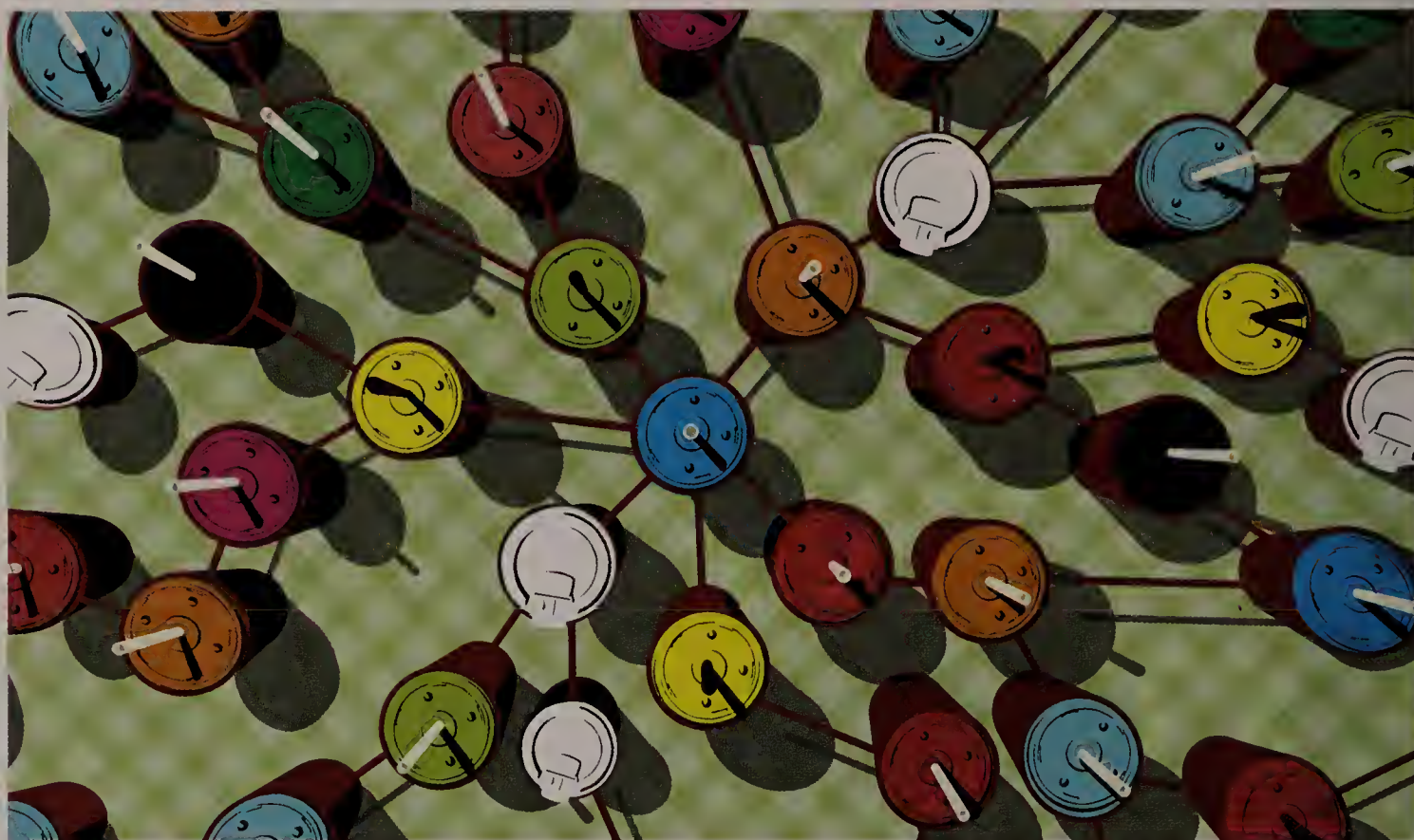
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Run Simple



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Big Gulp of Customer Data

7-Eleven updates its loyalty program from punch cards to a mobile app for super-frequent patrons **BY STEPHANIE OVERBY**

7-Eleven may be one of the most recognized convenience store brands in the world—and it's definitely the largest, with more than 56,000 locations worldwide. But until recently, the company knew nothing at all about its individual customers, who typically pay with cash.

The 88-year-old retail chain began work on its first digital customer loyalty platform for the U.S. in 2012. Previously, some franchisees had run their own loyalty programs—usually involving old-school punch cards. “But more and more of our customers were digital and mobile, and they felt the experience should be the same from store to store,” explains Robert McClarin, loyalty CRM marketing technologist at 7-Eleven.

First, 7-Eleven's leadership committee (representing operations, marketing, merchandising and IT) discussed what they wanted to accomplish, with input from franchisees. Then, in 2013, the company worked with Teradata (a data management vendor) and Brierley+Partners (a loyalty program creator) to build a CRM system integrating transactional data with customer segmentation. ▶▶▶

..... **2 Billion** Lines of code that Google stores in a single repository, where 25,000 engineers make about 45,000 changes a day. Google/Wired

ILLUSTRATION BY DANIEL HERTZBERG

crunch

First-Day Follies

ATTENTION IT AND HR: Employees say tech shortcomings are No. 1 on the list of snags they encounter at new jobs.

Which of the following have you experienced when starting a new job?

Technology wasn't properly set up **33%**

Necessary **supplies** were not provided **22%**

Didn't get an **overview** of the company and its policies **16%**

Wasn't **introduced** to co-workers **15%**

MULTIPLE RESPONSES ALLOWED.

SOURCE: OFFICETEAM SURVEY OF 300 U.S. WORKERS, AUGUST 2015

Last fall, they launched the consumer-facing part of the loyalty program: the 7Rewards mobile app, which assigns each customer a unique ID and bar code. The rollout began with 100 stores in Washington, D.C., and was completed nationwide in March.

The first target: beverage buyers, an obvious choice, given that 7-Eleven in 1964 became the first company to offer coffee to go and has been selling the Slurpee since 1965 and the Big Gulp since 1976. Today, more than 60 percent of its patrons grab some sort of liquid refreshment. The app gives them a seventh cup free after they purchase any six beverages.

The system enables 7-Eleven to tailor offers to specific customers in specific situations. "We take a look at what you buy, what you don't buy, offers you redeem and don't, the time of day, and even the temperature, and bake it all into an experience for you," says McClarin. One goal is to encourage customers to come in at different times—for example, luring frequent Big Gulp purchasers with a free snack, or offering morning coffee drinkers a free afternoon pick-me-up. "It's pretty easy to see what's going to motivate people," says McClarin. "The data scientists work their magic and that helps us be smarter about our offers."

A big challenge was tying Teradata's Real-Time Interaction Manager to 8,500 point-of-sale systems so they could communicate in real time, a problem solved with an enterprise service bus. "A lot of loyalty programs are based on batch [processing]," McClarin says. "We wanted to know immediately what was going on with a customer so we can thank them in real time."

7-Eleven is giving away more free beverages than ever before, but it's also selling more total units and the overall per-visit purchase is higher for 7Rewards members than non-members. The loyalty program also created a new way to collect customer opinions about stores, products and services. "The ability to survey members and get immediate feedback has been huge," McClarin says. "It's true customer engagement."

Stephanie Overby is a freelance writer based in Massachusetts.

Data makes it "pretty easy to see what's going to motivate people" to buy.

—Robert McClarin, marketing technologist, 7-Eleven

Your Digital Honeymoon? It's Over.

If you feel like your digital transformation efforts have come to a standstill, welcome to the club. Research firm Everest Group says 43 percent of organizations have hit a "digital trough," according to a survey of 120 business and IT leaders at North American companies.

Most organizations experience a honeymoon period at the start of their digital journey. "Investments are flowing, everybody believes in this brave new world they are going to create together," says Chirajeet Sengupta, an Everest Group vice president. But in the next phase, he says, "everybody starts questioning the value of what they are doing. Investments tend to get constrained, organizational capabilities are stretched and tested, and traditional business processes and organizational behavior are challenged."

How do you dig out of the trough? Have clear objectives, appropriate metrics and realistic expectations. "Some of these challenges are bound to come up," says Sengupta. "It is important for everyone to anticipate them and be prepared instead of expecting things to change overnight." —Stephanie Overby

13

..... **85% U.S. parents** who say it's important to teach computer science in grades 7 to 12, yet **75% of schools** don't teach coding. Gallup/Google

Beyond Your Borders

The latest megatrend—digital ecosystems—requires radically new ways of thinking about business and innovation **BY MADELINE WEISS AND JUNE DREWRY**

The Beatles had it right: You need a little help from your friends—to succeed in today’s competitive, fast-paced, global environment, that is. But which friends? Why do you need them? And how do you play a leadership role vis-à-vis those friends in evolving business ecosystems?

Business ecosystems are dynamic webs of partners who rely on each other for success. And they’re emerging in every industry. One example is Home Depot, which is working with manufacturers to ensure that all of the smart home products it sells are compatible with the Wink connected home system—thereby creating its own ecosystem and simplifying consumer decisions in a confusing new market. Another example is how car companies are teaming with tech vendors for in-car infotainment systems.

“Businesses see great potential to make a difference—and a profit—by operating as ecosystems, not just as individual corporate entities,” says the “Accenture Technology Vision 2015” report, which is based on a global survey of more than 2,000 IT and business executives. According to Accenture, four out of five survey respondents said they expect to see a dramatic blurring of industry boundaries. Moreover, 60 percent said they plan to engage new partners within their respective industries and 40 percent said they plan to connect with digital partners outside their industries.

To keep up with customers’ increasingly complex demands, companies must rely on ecosystem partners to augment their in-house knowledge and capabilities.

At a recent meeting of the Society for Information Management’s Advanced Practices Council, Michael Barrett, a professor at Cambridge University’s business school, outlined what it takes to lead an ecosystem successfully. Barrett cited the example of ARM, a British company that designs processors for digital devices but relies on ecosystem partners to manufacture the products. Although the platform is proprietary to ARM, significant collaboration

occurs among partners, such as Apple, Dell and Nvidia. “ARM’s strategy for creating ecosystems is to ensure that the end customer benefits from better reliability, lower costs, and the latest advances in technology,” Barrett said.

A successful business ecosystem requires radically new ways of thinking, starting with a shift from a mindset that sees fixed organizational boundaries to one that looks beyond the existing borders of the organization, Barrett added. That leads to sharing critical knowledge through-

out the ecosystem so that end customers benefit. It also leads to sharing the financial rewards. ARM executives ensure that their ecosystem partners can build profitable businesses of their own and that not all profits are captured by ARM. Since ARM’s earnings come from royalties and software license fees, it needs a strong set of partners to keep the revenue flowing.

Companies also need to think broadly about ecosystem innovation and consider who else needs to innovate, or adopt an innovation, before the end customer can get the full benefits. For example, digital cinema initially failed because of the high cost of adoption by operators of movie theaters. When Hollywood producers subsidized theater owners’ purchases of digital equipment, digital cinema became available to customers.

Yet another mindset shift is getting by with help from friends who may be competitors in other situations. The pharmaceutical industry provides myriad examples of competitors who form ecosystems to bring drugs to market sooner than one company could on its own.

This new world of business ecosystems—partnerships that require building trust, learning together and capturing value equitably, all in the interest of increasing customer benefits—will test the leadership skills of any executive.

Business ecosystems are partnerships that require building trust, learning together and capturing value equitably.

Madeline Weiss is director of the Society for Information Management’s Advanced Practices Council. June Drewry is a former CIO of Chubb and an adviser to the APC.

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Rx Marks the Spot

Walgreens uses digital mapping and demographic data to decide where to open new drugstores **BY MICHAEL S. GOLDBERG**

When Jillian Elder needs to build a business case to boost her location-based business intelligence program at Walgreens, she knows the winning trigger: demonstrating that the investment will lead to one additional store, or one better-performing store, in the coming year.

It's her team's ability to identify where that investment should be made—and the added revenue it could deliver—that clinches the argument. Determining the best location for a new Walgreens drugstore requires analyzing the demographics of various neighborhoods, scouting the local competition and checking on the local labor pool (notably, qualified pharmacists). Improving the results of an existing outlet could involve updating population studies and sales reports to suggest changes in product selection or presentation, such as printing prescription bottle labels in different languages.

"Location is a big part of our business strategy, and we can enable that," says Elder, whose ▶▶▶

Maps are a hit with Walgreens users, according to **Jillian Elder**. "They start interacting with the data ... and they see it in a whole other way. It opens their eyes," she says.

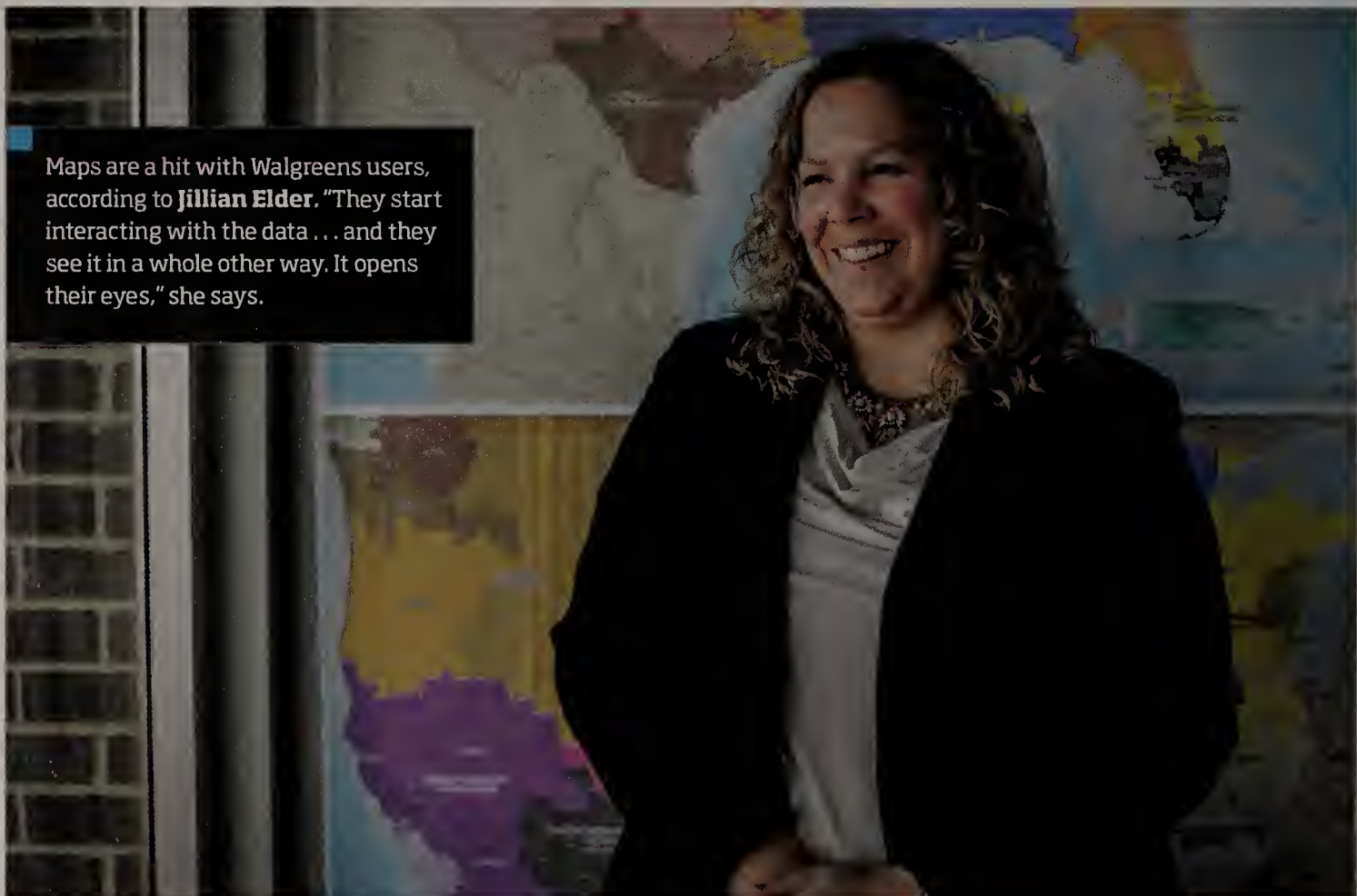


PHOTO BY BOB STEFKO

title is director of enterprise location intelligence. She and her four-member team (which has a dotted-line connection to the IT department) sit in the strategy group of the company's U.S. retail pharmacy business unit; their job is to grow the 8,200-store chain.

Since joining Walgreens in 1999, Elder has seen her work evolve from producing paper maps about customer trips to managing WalMap, a geographic information system that now serves several hundred business users. WalMap delivers analysis to users in views based on their job function.

Here are some examples of how WalMap enables Walgreens business people to be more productive:

- The mergers and acquisitions team can assess potential pharmacy purchases based on the strength of their existing market position.
- Recruiters can identify licensed pharmacists who live within driving distance of new stores.
- Marketers can study sales data to identify where to mail circular ads based on when customers have visited, or how close they live to a competitor.
- Field staff can use a tablet version to analyze store performance and annotate maps with updates about neighborhood changes and competitors.

Data-driven applications like these are reshaping retail and enabling more personalization, says analyst Doug Stephens, founder of Retail Prophet. "That starts with the understanding that the U.S. is not one market—it's comprised of thousands upon thousands of much smaller markets," he says. "For decades, we never had the technology at hand to segment markets in that way, and now we do."

The WalMap system, built on Esri's ArcGIS and Latitude Geographics software, incorporates both internal data and external information like demographic statistics and syndicated healthcare data, Elder says. The applications can show sections of the country down to block levels, or about 400 households, to calculate metrics such as the prescription medication market share in a given area.

For Elder's team, the challenges include matching that data to locations and meshing with users' business processes. But the visual appeal of maps keeps users coming back. "WalMap has certainly helped get executive buy-in," she says. "Everybody likes maps. They start interacting with the data they are familiar with and they see it in a whole other way. It opens their eyes."

Michael S. Goldberg is a freelance writer based in Massachusetts.

Virtual Reality Headed To the Corporate World

BY JOHN BRANDON

Virtual reality (VR), a consumer technology that always seems to be waiting in the wings, is finally ready for prime-time business applications. Companies can use the technology to help customers understand a product, or visualize an idea or project. Lockheed Martin, for example, saves several million dollars in costs on the production floor by using VR to simulate space vehicles and satellites, according to company representatives. Other business applications include virtual tours of buildings or virtual looks at the interiors of new luxury cars.

To create VR videos, you need to capture the footage using a camera that records in a 360-degree panorama, and have software that stitches together the content (video, text and audio) into a VR scene. And the user needs a headset viewer.

WorldViz, a maker of VR software, says users can cut costs by about 90 percent if they use VR instead of building physical models. For example, a healthcare facility might create a VR model of a new clinic prior to construction and then make tweaks to the design while checking the floor plan in a 360-degree viewer. "VR technology allows users to naturally walk about a full-scale surgery room and change designs at a button click," says Peter Schlueer, president of WorldViz.

Oculus VR, a market leader, tends to focus on gaming applications, but a company representative says Oculus is exploring business uses. "Imagine being in a product review with people from around the globe—your operations lead is at the manufacturing plant, your marketing head is visiting an ad agency, your product lead is at the R&D lab and your CEO is at HQ. In VR, you will be able to all be together and have the product in that virtual space," says Oculus COO Laird Malamed.

Business Realities: Sage Realty uses a platform developed by VR software vendor Floored Inc. to provide virtual tours of commercial buildings in Manhattan. And \$3 billion McCarthy Building Cos., one of the top 10 commercial construction contractors in the U.S., uses the Oculus Rift development kit to create VR replicas of construction projects and shows them to clients on Samsung Gear VR headsets.

Mike Oster, CIO at McCarthy, says some clients are initially hesitant and say they'd prefer a physical model, but they quickly see the value of VR. He says McCarthy makes sure to build "a fully rendered model with texture [and] proper lighting that is adjustable... so the client is able to tour the most realistic space." The builder uses software from VIMtrek to convert architectural designs to 3D images for use in the headsets.

John Brandon is a freelance writer for CIO.com.



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VIEWPOINT



Tony Bishop

VICE PRESIDENT,
GLOBAL ENTERPRISE STRATEGY
& MARKETING, EQUINIX

Tony Bishop is the vice president Global Enterprise Strategy and Marketing for Equinix. In this role, he is responsible for creating the global growth strategy and go to market execution plan for Enterprise, as well as building out global enterprise ecosystems. Author of Next Generation Datacenters—Driving Extreme Efficiency & Effective Cost Savings., Bishop previously drove strategic IT transformation programs for Morgan Stanley & Wachovia Bank. He is recipient of multiple industry awards including ComputerWorld's Top 40 under 40 IT Leaders.

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Today's Interconnected Enterprise

Equinix says interconnection is today's primary game-changer. What does interconnection mean, for both IT and the business?

We're entering the era of the ubiquitous, virtual on-demand world. The challenge is to create the shortest distance between people, systems, devices, applications, services and data. Interconnection is what integrates all these across partners, customers and employees and then across all geographies through direct, secure physical and virtual connections between dense industry ecosystems.

Do you believe that business and IT leaders recognize this shift?

For sure, they know they have to be more customer-centric. They also know they have to be more flexible and more intelligent about building, deploying and operating apps and IT services. For example, in a study we did of 1,000 IT decision-makers, three of every five businesses represented reported that they believe interconnection is "very important" to their ability to compete. This is driving them to take action: The same study showed that the percentage of interconnected enterprises is set to more than double, from 38 percent to 84 percent globally by 2017.

What are the business drivers of interconnection?

Traditional approaches to IT don't work well in this emerging on-demand world. They have been built in a reactive, static, siloed way that can't quickly create new channels to market and easily scale, which is what businesses are increasingly demanding. IT must fully support the 75 percent of enterprise workers who labor outside the corporate headquarters and the 4 in 10 branch offices that are now exclusively direct-to-Internet. If you don't have an interconnection strategy geared to help your enterprise differentiate itself and drive growth, speed, security, scale and engagement, you are at a severe competitive disadvantage.

So what does the interconnected enterprise look like?

Today CIOs are asking, "How do I build business functions that are composite in nature and cross-functional while breaking down barriers to enable sharing and collaboration from a user and a business process standpoint?" Intercon-

nection dissolves siloes, connecting employees, partners and customers to what they need, in the right context, with the devices, channels and services they prefer. The interconnected enterprise reacts in real time, adapts instantly to change and exploits digital ecosystems to create value and growth.

What are the business benefits of interconnection?

Just what the business demands: notably growth, speed, security and agility. In addition, you get that business-critical edge of deeper employee, customer and partner engagement. Forrester actually quantified the benefits, estimating that the sum of all these advantages drives a stunning 300 percent ROI for interconnected enterprises (see link below for this research study).

Who should be leading the charge toward interconnection?

This job definitely needs to be CIO-sponsored, and the CTO has to design for an enterprise architecture that will cut across multiple business functions. Thus, it also makes sense to involve the head of platform or cloud architecture to support the overall CIO agenda. Remember, this task is all about change management.

At this point, what moves should organizations be making as they ready themselves for this new interconnected era?

Start with a thorough and complete examination of the business. Who are the users? What applications and services do they consume now, and which apps will they use down the road? Where are the key performance, cost and efficiency challenges? We have many customers struggling with critical distributed applications that are suffering from a performance standpoint, so these are often good places to start reexamining needs. Then evaluate the network for limitations such as uncontrollable costs, inconsistent service levels and overall traffic patterns. One important point here: This architecture shift can be implemented gradually. It is not a forklift replacement. Even better, it will pay for itself — and then some — through cost savings.

To learn more about the benefits your business can expect to receive as an interconnected enterprise, download the **Forrester TEI report** at eqix.it/Forrester_TEI or visit the Equinix Website.

Succession Planning Lags

Many CIOs struggle to find time to groom their replacements. And some of their deputies don't really want the C-suite job. **BY CLINT BOULTON**

As technology is increasingly woven into the fabric of business, it's incumbent on CIOs to build a deep bench of IT talent that includes one or more lieutenants who can fill their shoes if they move on.

Ideally, a proactive approach to succession planning should strengthen the organization by generating a pool of talented CIOs-in-training. But recruiting future leaders can be challenging at a time when IT professionals can make good money in digital innovation roles without moving into senior management positions where they may have boards of directors looking over their shoulders.

As difficult as it may be, "it's every leader's responsibility to plan for his or her eventual departure," says Jay Ferro, CIO of the American Cancer Society. Ferro, who joined the ACS in 2012, says that he has about five candidates who will be capable of doing his job in one to two years, with proper mentoring.

He notes that succession planning is often driven by the board of directors and CEO. "It mitigates the risk to the organization that if I get hit by a bus or win the lottery we'll be in good shape," Ferro says. He also says he challenges his direct reports to identify three people who, in turn, could take their roles, further buttressing the company's IT ranks.

But most IT organizations don't have succession plans, says John Reed, senior executive director at Robert Half Technology, an IT staffing firm. Of 1,400 IT leaders RHT surveyed in 2012, only 20 percent

said that they had such plans in place. One reason for that, Reed says, is that most companies simply don't have time to cultivate understudies in the IT department because they're so focused on growing the business.

Another reason is that CIOs may feel threatened by prospective replacements. "Most CIOs are not real comfortable developing somebody who can come in and take their jobs," Reed says. The problem with

develop internal talent or CEOs go hunting for CIOs, succession planning can be especially difficult at the Fortune 500 level, because there's a shortage of IT leaders prepared to manage IT for multibillion-dollar corporations and handle the broader, relationship-building and communication tasks in the C-suite.

And, of course, candidates who may be talented enough to be CIOs may not want the job because they

Many IT people would rather run an **innovation lab** than sit in **board meetings**.

this thinking, he adds, is that it results in talented people leaving because they feel there's no path forward.

Steven Zerby, CIO at Owens Corning, says his succession plan includes both external and internal candidates, but the challenge is finding time for candidates—who typically have "big jobs" as heads of infrastructure or application development—to learn the CIO role while still performing their daily duties. "The trick is carving off time for them to be watching and learning," he says, noting that a CIO might like to invite a mentee to a weekly meeting with a CSO to show how CIOs interact with their business partners.

Of course, many companies don't hire CIOs from within. A 2013 Booz & Co. study of CIO succession found that only one-third of CIOs reached their positions by moving up within the same organization.

Regardless of whether CIOs

can forge high-paying careers without the hassles that come with the CIO role. "I kind of get it," says Zerby, reflecting on why people might think that way. Other IT positions may be more liberating, he says, because you can work "under the radar."

Ferro agrees. A C-suite role may not appeal to IT people who would rather lead an innovation lab than sit in board meetings, conduct performance reviews or meet with the audit committee, he says.

Nevertheless, it's important for CIOs to try to cultivate talented successors—not just for the welfare of the company, but for the sake of the rank-and-file IT staffers whose livelihoods depend on a strong leader. "They're working their butts [off]," Ferro says. "You owe it to them to minimize the disruption in their lives."

Clint Boulton is a senior writer covering CIOs at CIO.com.

Healthcare IT Plagued By Poor Usability

The federal government has spent billions to encourage the adoption of electronic health records (EHR) to improve quality of care and patient outcomes, and to get consumers more involved in their own treatment. But digital records systems haven't lived up to the hype, in part because of data and interoperability problems and poor user interfaces.

Despite the widespread adoption of EHRs for internal use by hospitals and other providers, only 28 percent of patients have access to their

online health records, and few of them have actually looked at their records, according to the Office of the National Coordinator for Health IT.

The problem is that the usability of EHRs "remains subpar," says Raj Ratwani, an assistant professor at Georgetown University's medical school and senior director of Med-Star Health's National Center for Human Factors in Healthcare.

EHR developers need to focus on "user-centric design," Ratwani says. That means designing the system from the patient's point of view—and not just the screen layout.

"A common misunderstanding is to think that usability is only about basic screen design, such as font size, color and layout," Ratwani says. More important is "the degree to

which the functionality and design of the system support the decisions and actions that are critical to the typical needs of patients and clinicians," he says. "Patients and clinicians are able to comprehend, reason and gain insight from health information only when the systems work in concert with the way [they] think."

Ratwani says regulatory agencies may need to require a more consistent, user-friendly design for EHRs. He points out that in other high-risk, highly regulated industries like aviation, the user interface is part of the certification process for any new system. "No technology enters the cockpit of an airplane before the usability is inspected and found to meet detailed standards," he notes.

—Kenneth Corbin



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PUSHING THE RIGHT BUTTONS

The CIO at Schindler is using digital tools—sensors, analytics, mobile—to take the No. 2 elevator company to the top

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BY MARY K. PRATT

SCHINDLER GROUP MOVES 1 BILLION PEOPLE A DAY.

Most of those people go up and down via Schindler elevators and escalators operating in over 100 countries. Some use the company's moving sidewalks at airports. But it's not just the mechanical systems—the nuts, bolts and belts of its machines—that keep people moving. The Switzerland-based company has become increasingly reliant on its digital systems to ensure smooth operations, and today its digital organization is as critical as its mechanical one.

Schindler, the world's second-largest maker of elevators and escalators, behind Otis Elevator, has been undergoing a digital transformation for several years. Leaders at the 141-year-old company saw the need to do more than improve the mechanics of their equipment; they say they had to make both their equipment and their employees *smarter*, in an industry that is highly competitive but also has great growth opportunities.

CIO Michael Nilles has been instrumental in positioning the \$9.3 billion company for future growth by leading—in concert with other business units—a digital transformation that includes ▶▶▶



CIO **Michael Nilles** says Schindler Group is using sensors, data, business rules and machine-learning algorithms "to deliver a superior customer service experience."

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23



connecting to the Internet of Things and deploying mobile technologies to do the job.

"Digitalization is something that's impacting our top and our bottom line. At first it was bottom line, but it's becoming more and more important to growing our top line," Nilles says. "The big investment is paying off. You can't just replicate this in another company."

The market opportunities are significant. The overall global demand for elevator, escalator and moving walkway equipment and services will reach an estimated \$111 billion in 2017, rising 5.6 percent a year, according to The Freedonia Group. Industry analysts say that the big growth drivers are urbanization and high-rise construction projects, especially in regions such as Asia and the Middle East. China is a major battleground.

Schindler competes fiercely with the other members of the elevator industry's Big 4—Otis, Kone and ThyssenKrupp—not only for new elevator installations and upgrades but also for maintenance and service deals. Maintenance accounts for half of the Big 4's revenue and (because of its higher profitability) about three-quarters of their operating profits, according to Credit Suisse analysts.

Greg Ergenbright, president of Schindler Elevator Corp., the U.S. arm of Schindler Group, has been a key partner in the journey to the digital enterprise. He says digital transformation is helping the company win and retain customers—and thus capture a bigger share of those growth opportunities.

"I've seen a rapid change in terms of the speed that customers require information and the type of information they require. They want information in real time," Ergenbright says. They want performance data—equipment uptime, the number of outages or problems with a particular unit, the nature of those problems. "Now that's available via our app," he explains. "It's a selling point, and the feedback from the market is very favorable."

Ergenbright recounts a recent meeting in which Schindler employees encouraged a representative of one of its big accounts to check out the Schindler Dashboard, a mobile app (and Web portal) for customers.

The dashboard gives clients—managers of large buildings or multiple properties—an overview of the operating status of their elevators and escalators. After downloading the app, the client could see that two units were out of service. He then asked if he'd be notified when another unit goes out of service. As if on cue, a notification popped up, indicating an outage—an outage he quickly verified via phone with workers on site. The client could see, too, that Schindler personnel knew about the

problem and were already scheduled to fix it.

"The type of information we're offering isn't unique, but the ease of use of the app and the real-time nature of it is," Ergenbright says. "Everyone involved in the process sees the same thing, everybody knows exactly what's going on in real time."

That level of customer service helps Schindler win over customers who see it can help them be more efficient and keep their own customers happy, Ergenbright says.

Consider a typical scenario: A property manager gets a call from a tenant complaining about an elevator or an escalator out of service. Unless the property manager is on site and sees the problem, or has been informed by a worker in the building, the call would come as a surprise. Not the way to impress tenants. But now, with the dashboard, Ergenbright says the property manager can respond to such calls with a "Yes, we're aware of the problem and it's already scheduled for service."

Streamlining Service

When Nilles started with the company in late 2009, Schindler couldn't deliver that kind of customer service. If an elevator or escalator broke down, Schindler wouldn't know about it until a call for service came in. Then the company's call center would schedule a technician, who would have to visit the site to figure out the problem before starting to fix it.

Today, six years later, that process has been streamlined and shortened.

Schindler now has unprecedented insight into the health and well-being of the equipment it has installed throughout the world. Sensors collect and transmit data related to equipment performance, while a business rules engine on the back end analyzes that data for insights into

the current maintenance requirements for specific pieces of equipment. A collection of apps shares that same information with building owners, facility managers and Schindler employees, who use it to handle service needs more efficiently and effectively.

Workers aren't only getting real-time alerts when problems arise, though. They now know about potential future issues and can respond before there's even an outage, thanks to new predictive analytics systems that analyze data from the equipment to forecast possible mechanical issues.

Nilles says this "closed-loop service platform"—in which the dispatcher, the equipment and everyone in the field has the same real-time information—is the first of its kind in the industry.

Schindler's growing use of big data, predictive analytics and smart algorithms allows it to better prepare for broader problems, too, because the company can more accurately anticipate the most common problems for equipment installed in

**"IT WAS A
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—MICHAEL NILLES, CIO,
SCHINDLER GROUP

a given area—and store spare parts with or close to the technicians who will need them. And technicians can use a Schindler spare parts finder app for parts they don't have on hand. (In North America, the company stocks about 50,000 different replacement parts.)

Those apps are part of what Nilles calls a digital tool case, a collection of resources that each of the company's 30,000-plus field workers—about 20,000 service technicians plus 10,000 supervisors or people in other related roles—now has.

These digital tool cases feature iPhones (for workers who need something small) or iPads (for supervisors or others with additional information requirements). The devices come with Schindler apps suited for each worker's needs. Technicians can access detailed information they need to do their jobs (information that they once lugged around in paper documents). "It was one of the key objectives, to make the whole experience as easy as possible for them," Nilles says.

Most elevator companies are going high-tech to be competitive, says Soumya Mutsuddi, an industry analyst at Technavio. She says that Otis and Kone also have mobile-based applications that predict equipment service needs and stay connected with customers. Where Schindler is ahead of the pack, Mutsuddi says, is the mobile toolkit for service technicians, a collection of apps on Apple devices that enable workers to provide faster and more-efficient service to clients.

An Evolutionary Trip

Schindler was hardly starting from zero when it embarked on its digital transformation six years ago. Elevators, for instance, already came with phones that passengers could use to contact call centers. And Schindler was already collecting some basic data about the health of its elevators and escalators. And elevators already had electronic controllers and sensors, although the data that they collected generally resided locally on the machines.

But these technologies, along with the back-end IT infrastructure that ran day-to-day operations at Schindler, were just pieces that needed to be brought together and taken to the next level.

Nilles says digital transformation isn't about a specific technology or even the entire IT stack. Rather, he says, it's about a "game-changing adaptation to your business model to stay at the forefront of your industry."

However, before Schindler could take on that higher-level transformative work, he says the company had to fortify its IT foundation. That foundational work was in two areas: IT rationalization and global business process optimization.

GET READY FOR 'INDUSTRY 4.0'

Pundits say Schindler is already at the forefront of the next industrial revolution

The mechanical weaving loom and steam-powered factories. The assembly line for mass production. Computerized industrial control systems. Those were the first three revolutionary waves in the manufacturing industry. Now analysts say manufacturing is headed toward a fourth wave: the industrial Internet of Things, or what Europeans call Industry 4.0.

Schindler Group is already being hailed as one of Europe's "pioneers of Industry 4.0," according to a March 2015 report by Roland Berger Strategy Consultants, which cited the integration of Schindler elevators with the Internet of Things and the company's mobile toolkit for service technicians.

In general, Industry 4.0 includes a wide variety of technologies *du jour*, such as sensors, data analytics, robotics, artificial intelligence and 3D printing. A recent Deloitte report predicts that Industry 4.0 will bring multiple advantages, "from enhanced global competitiveness to a reversal of the trend to relocate production to low-wage countries and the opening of more domestic production locations in Europe and North America." (The risks include data security breaches and the hassles of integrating incompatible systems.)

The combination of these technologies, analysts say, will transform how manufacturers operate, affecting the entire supply chain as well as the production, delivery and service processes. Companies will have to embrace this digital transformation, or be left behind.

"Digital transformation is the complete evolution, or revolution, of how companies do business in a digital economy, where technology is only one part of the equation," says Brian Solis, principal analyst at Altimeter Group, a research and advisory firm. "If you don't adapt, you become irrelevant, which leads to [brand and market] erosion and probably going out of business." —M.K.P.

The IT rationalization phase was aimed at standardizing the global IT infrastructure and retiring legacy systems to improve efficiency at the company, which has more than 54,000 employees worldwide (more than 5,000 of them in North America). The next phase, called SHAPE, for Schindler Harmonized Applications for Process Excellence, focused on integrating and synchronizing global business processes and applications. "The overall target was to drive the company toward operational excellence," Nilles says, noting that this project affected the entire company—including finance, the supply chain and service management, for instance.

These were major undertakings and they presented big challenges. "It was a hard and painful journey," Nilles recalls. "We went through a few lessons-learned phases. Because when you're doing such an effort, it's a business transformation exercise. It's about change management. You have to train people, make organizational adaptations so people can make use of the new solutions. All of that's involved."

Schindler officials declined to disclose how much money the company spent on these projects, although Nilles says the investment was significant.



Customers want real-time data about equipment performance, says **Greg Ergenbright**, president of Schindler's U.S. unit, so the company delivers it in a mobile app.

Still, Nilles says he and other company executives realized that any competitor could make the same improvements if it was willing to spend the money. "This gave us a good competitive advantage, but there were other companies that were working on operational excellence. We knew that it could be replicated—it only requires a huge investment," Nilles says. "We were thinking about how to gain a competitive advantage using new innovative and digital solutions that were emerging to achieve a superior customer experience. We asked what that looked like. We didn't want to look into one piece. We wanted to change the way the customer did business with Schindler."

That thinking launched Schindler on the third phase: moving to what Nilles calls a "leading-edge digital business."

Leading Digital Transformation

Building on the IT rationalization and global operational excellence phases, Nilles and his team capitalized on mobile tools and a confluence of maturing technologies—sensors, connectivity, big data and analytics systems—that collectively evolved into the Internet of Things.

At Schindler, older equipment already in operation has to be retrofitted with connectivity modules, while equipment manufactured in the past few years already comes with the sensors and connections needed to fit into this new ecosystem.

The technology embedded on equipment in the field connects to the company's back-end systems, where an analytics engine handles up to 200 million incoming data points every day.

The technology is a mix of commercial products and systems

developed in-house, Nilles says, adding that Schindler's leap into digitization couldn't have happened without innovations from the vendor community, such as cost-effective data analytics technology.

"Twenty years ago, you couldn't connect products to backend systems or do even simple basic monitoring without it costing you a fortune," Nilles says. "Now we have a robust, technology available at a very low cost that's exponentially driving this digital opportunity."

And the fact that the iPhone is a critical component of the digital tool case puts a distinctive spin on Schindler's digital transformation. While Apple has had a reputation for ignoring the enterprise, Nilles says the iPhone is "a fantastic tool for the field, and it's easy to understand for the user."

Deploying the technology, however, was only part of the initiative. Nilles says the digital transformation also required understanding the value hidden in the data; understanding how it yields insights that improve how Schindler delivers products and services; and using those insights in day-to-day operations so they bring value to the company's customers.

"This data doesn't mean anything if you don't put the right business rules and machine-learning algorithms to it," Nilles says. "That's where we have the biggest competitive advantage. We are able to deliver a superior customer service experience."

George Westerman, principal research scientist at MIT's Sloan Initiative on the Digital Economy, agrees. "Getting value from digital isn't about the technology, it's about the leadership," he explains. "You adopt a mobile app or analytics, that's not going to drive more customers to your company. But you work with your people to be smart about how they make decisions, and now value starts. So the goal isn't to have mobile customer engagement, but truly intimate customer engagement powered by technology." Putting it another way, he says, "digital is just a hammer, and it's how you use the hammer that matters."

In May, MIT recognized the importance of Nilles' work, awarding Schindler its 2015 MIT Sloan CIO Leadership Award. Westerman, a co-chair of the MIT awards program, calls Schindler and other successful digital companies "digital masters."

What's a digital master? "They're doing better things with technology, and they're outperforming their peers," Westerman says. He defines digital transformation as "using technology to drive big changes in the performance or the reach of organizations."

Others, too, see Schindler's work as being on the leading edge. In addition to the MIT award, Schindler won the 2015 Digital Business Innovation Award from IT services provider Capgemini, German business newspaper *Handelsblatt* and the University

of St. Gallen. Schindler's multistage digital transformation "dramatically increased their efficiency and their customer satisfaction," says Uwe Dumschlaff, CTO of Capgemini in Germany.

A prime example of the state of the art is 4 World Trade Center, a post-9/11 skyscraper in lower Manhattan that opened in November 2013. It's a building that's smart, green and 72 stories tall. Schindler provided 34 energy-efficient, high-rise passenger elevators that reach speeds of up to 1,800 feet per minute. The

building uses Schindler's intelligent destination-dispatching system, called PORT (short for Personal Occupant Requirement Terminal), which optimizes traffic flow and provides personalized service. This technology is integrated into the building's lobby turnstiles and at each elevator entrance, allowing occupants to identify themselves and select their destination using preprogrammed access cards or a touchscreen interface. PORT then automatically directs passengers to the elevators that will get them to their destinations in the shortest time, using the least amount of energy. By identifying passengers and their destinations, PORT technology also provides access control throughout the building, limiting travel to authorized visitors and destinations.

Schindler recently developed a mobile app called myPORT that provides the same type of destination dispatching (and security) with a reader that recognizes individuals' smartphones at building entrances and elevators.

Foundation for Future Innovations

Schindler's digital transformation isn't done yet. The company continues to deploy IT-driven capabilities throughout its global operations, Nilles says, and his team is focused on developing and delivering more innovations for Schindler's clients.

To that end, in 2013 Schindler created a business unit, called Schindler Digital Business AG, to foster innovative, tech-enabled projects. Nilles is the CEO of that unit in addition to being CIO.

Nilles and other Schindler leaders declined to reveal projects in the pipeline or the business unit's long-term strategy. But Schindler is always looking at ways it can use its platform to enable more insights and more efficiencies to benefit clients—"so we can always be one of the front-runners in this industry," Nilles says. Don't be surprised if Schindler finds ways to integrate smart elevators and smart buildings into broader smart city systems, working with partners in the urban ecosystem to exploit the company's sensors and data. That, Nilles says, could be the fourth phase. **CIO**

Mary K. Pratt is a freelance writer based in Massachusetts.

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—GREG ERGENBRIGHT, PRESIDENT,
SCHINDLER ELEVATOR CORP.

connect

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SOUNDING BOARD

Bonding With the CFO

IT success hinges on financial support, so learn the lingo and stay in close touch

SAM CHESTERMAN, IPG MEDIABRANDS

UNDERSTAND THE LANGUAGE AND THE ROLE

I know the CFO is one of the busier people in the company, so during our weekly one-to-one meeting, I try to focus the discussion on a punch list of the 10 things that are critically important to move the business forward. We also communicate frequently via text—usually on specific issues and project updates. I don't bother him with decisions about projects that cost \$5,000 to \$10,000, but I do consult with him on initiatives requiring investments of more than \$100,000.

Be sure to find out what the CFO does. Signing off on Sarbanes-Oxley compliance, overseeing all the financial functions and managing finance personnel are typical responsibilities, but CFOs wear a number of hats. Given the global nature of our business, our CFO has his finger on the pulse of everything—including new client ▶▶



Sam Chesterman,
SVP and CIO,
IPG Mediabrands



Ed Brandman,
CIO, KKR



Matt Ode, SVP
and CIO, Thrifty
White Drug Stores



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pitches, the quarterly forecast and developments at the parent organization.

Having a baseline understanding of what the CFO does helps me when we discuss particular situations in which I need resources. For example, I'm familiar with the quarterly reforecasting process that he manages, and I understand how he might take the forecast into account if I present him with a request for a resource or capital—a bigger piece of hardware, for example. If it isn't a smart time to spend money, the CFO lets me know.

ED BRANDMAN, KKR

KEEP IT HIGH-LEVEL BUT BE PREPARED TO DRILL DOWN

To build a great relationship with the CFO, it's critical to speak his language by understanding the financials and using relevant terms like capital expenses, accruals, depreciation, G&A [general and administrative expenses] and so on. I also understand how what I'm doing contributes to the company. When I go to the CFO with a budget request, I only present initiatives in terms that make sense to him. If the project doesn't generate revenue, save money or protect the firm in terms of reducing risk, I don't present the story.

While I aim to keep conversations with the CFO at a high level, I am always insanely well prepared with details he might ask about. I never want to be in the position of saying I have to get back to him with information. When proposing a project for a specific business, I also make sure I've already gotten executive buy-in, so I can refer the CFO directly to the business leader if he asks.

It's also critically important to build a relationship between the CFO's entire team and my own. Establishing deep bonds between the teams—with the controllers, the tax group, the accounts receivable department and others—builds confidence.

MATT ODE, THRIFTY WHITE DRUG STORES

MEET OFTEN; BE COLLABORATIVE

I had the option of reporting to the CEO or the CFO. I chose the CFO, who is more tech-savvy; it was a better fit for the organization.

An open line of communication is critical. We have a weekly standing meeting so I can keep him informed about various IT projects, new opportunities that have popped up from different lines of the business and so forth. These discussions build trust and understanding for the different things we're doing in our department.

I've also learned to be flexible. Every company goes through a budgeting process to determine expenses for the year, but new needs may arise. You need to be able to go back and give the CFO accurate timelines and costs for projects to address those new opportunities. This is where transparency helps.

Lastly, be sure you understand the business objectives and can clearly explain where IT needs to spend the money to achieve them. There are often many ways to solve a problem, so I present multiple solutions if possible. I provide options—including the costs and associated risks. We examine the options together to make the best collective decision for my department and the company.

TAKE Note

Building a Digital C-Suite

REGISTER In the final broadcast of our Digital C-Suite Webcast Series, academic adviser George Westerman, principal research scientist at the MIT Sloan Initiative on the Digital Economy, will interview a panel of C-level leaders who are filling the gaps in their leadership capabilities and business practices during their digital business transformations. Tune in Dec. 12 to hear about their progress, missteps and lessons learned, which are valuable to businesses that are well on their way to digital maturity or are just starting out.

council.cio.com/bizcase

Tales of Transformation

REGISTER The most difficult challenges facing IT leaders include the task of transforming order-taking IT teams into groups of order-shapers, and asking technologists to be operational, strategic, consultative, innovative and customer-focused. And that's just transforming IT. These days, CIOs and their teams are leading cultural, business process and even business model transformations. Hear IT leaders discuss their transformation stories with moderator Martha Heller on Nov. 12 in the final session of this four-part series.

council.cio.com/transformcio

IT Talent, Decoded

REGISTER The war for IT talent is relentless. In an ever-changing business arena, competitive advantage often depends upon the capabilities, skills and drive of the IT team. Building a team that executes—consistently, effectively and transparently—is the top priority of any IT leader. In this highly interactive session on Nov. 4, Brendan McGowan, global media bureau and client research manager at the CEC, will reveal the results of the council's 2015 IT Talent Assessment Survey, providing a strategic analysis of the IT talent landscape. He will also offer insights from case studies about new and dynamic ways to attract, recruit and engage IT talent.

council.cio.com/decoded

In the Driver's Seat

At Mazda, the IT group generates ideas to improve the customer experience

BY JIM DIMARZIO

About two years ago, our IT group began focusing more intently on the customer experience. In some ways, it was new territory for us because, as employees of an automaker, we don't shop for cars like everyone else—we order them internally.

As a result, we weren't as aware of the customer experience as we should be. At the time, customer experience was also emerging as a hot topic for our vendor partners. They were doing customer journey mapping, so we brought that idea in-house; the strategy group liked what they saw and committed to doing a full customer journey map, including all of our customer touchpoints—what's working well, pain points and what we should focus on in the future. Today, our development plans are based on those customer touchpoints.

We quickly realized that we needed to implement a technology foundation that pulled together dealerships' sales information with their service information so we could really understand our customers across all our engagements with them. As a result, we're now able to see, for instance, that a customer has bought two Mazdas in the past three years, has been in for service five times and has bought accessories from us.

Now that we know the history of our interactions with customers, we can embed that intelligence into our business processes. For example, we can make better decisions about what customers to include in marketing campaigns—we don't need to send coupons for discounts on service to people who have just brought their cars in for appointments.

This capability will set us up for future customer interactions involving connected cars. Vehicle events will one day be able to trigger alerts to the call center or the CRM system. For example, we could send service coupons to people whose "check oil" indicators light up.

Dealerships rely on service for revenue and profitability, but there's a lot of competition for that business. We're working to make it easier and less intrusive for the customer to come to us. For example, service reps can now register customers in the service lane using a tablet so the customer doesn't have to come inside. Customers can also make appointments online, and dealers can receive information ahead of time on how to serve the customer

better. For example, they could be advised to check their inventory to see whether they need to order parts ahead of time.

The automotive market is seeing a lot of changes, thanks to technology. In customer satisfaction surveys, drivers report being happy with car quality but they're more concerned about the technology in the car, especially the entertainment system. We've equipped our salespeople with an iPad app that helps them easily access information about those features so they can move customers through the process quickly.

Our philosophy in IT is to bring innovations and ideas to the business. We've evolved to where we participate in brainstorming sessions with the business on how our processes can be more efficient or serve customers better using newer technologies. Our IT managers are bringing ideas to the table, not just listening. Part of IT culture change is to be an active participant in the business.

Jim DiMarzio is CIO at Mazda North America Operations. He is a member of the CIO Executive Council.



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Powerful Insights

Amgen is using algorithms to become a digital healthcare organization, says Suzanne Blaug, SVP of global marketing and commercial development **BY MARTHA HELLER**

How is technology changing Amgen as a business?

Traditionally, during an appointment, the doctor would hand-write a patient's condition and medications in a medical record, and when that patient returned two months later, the doctor would pull out the record and read it. With patient information becoming digitized, we have

cular disease. The program allows physicians to identify and engage people affected by familial hypercholesterolemia, an inherited condition that leads to high levels of cholesterol and premature cardiovascular disease. Without these algorithms, the process of patient identification would take huge amounts of data and a great deal of time.

their conditions or stay on treatment. We find that by running five or six pilots at a time, we can determine whether our digital health initiatives have traction in the marketplace, and we can demonstrate to the organization that the best of these initiatives have real value.

When I first came to Amgen, I set up a group dedicated to improving the experience of our customers, whether they are patients or physicians. The people in this group are experts at making others comfortable with digital technologies. For example, they came up with a tool that allows doctors to use text messaging to remind patients to stay on their therapy. While a simple texting program does not tap the potential of digital health, it does help bring our physicians closer to the digital world.



[We want to] bring our physicians closer to the digital world.

an opportunity not only to reduce reliance on manual records but also to help physicians and patients get more accurate information about their diseases.

How are these new insights changing healthcare?

For the last year, I have been working with our CIO, Diana McKenzie, to set up a digital healthcare organization to help physicians better predict how patients will respond to therapies, and to help patients stay on the therapies prescribed to them.

We have partnered with Stanford University on a program that uses complex algorithms to allow physicians to identify patients who are at very high risk of a rare cardiovas-

As another example, when I joined Amgen about three years ago, someone in Diana's IT organization had developed an extremely sophisticated algorithm that would enable physicians to predict what would happen to a patient given Treatment A versus Treatment B. We put this IT person together with someone in our commercial business, and they built a team to develop the new product, which will be launched soon.

How are you driving adoption of the digital health organization?

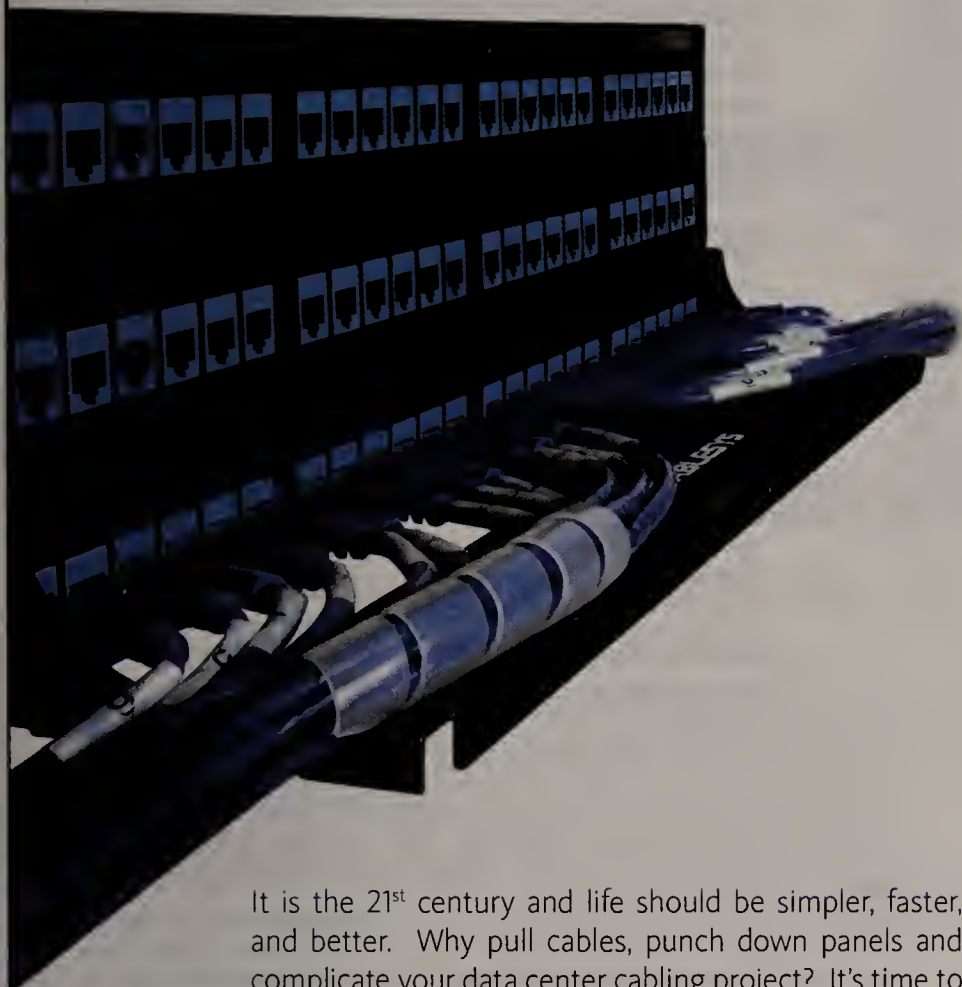
We faced some resistance at first, because like most biopharmaceutical companies, our innovation has always focused on our product, and less so on helping patients manage

What are you excited about in the world of technology?

Years ago, I was working in a small country where I was able to meet with customers myself. I remember thinking, "Wouldn't it be nice if we could transmit all this customer information to the head office in real time? Real-time access to customer information—on a global scale—would generate very valuable insights for us." I believe we're on the brink of finding tools that allow us to get real-time customer insights from all over the world.

Martha Heller is president of executive recruiting firm Heller Search Associates and author of *The CIO Paradox*. Follow her on Twitter: @marthaheller.

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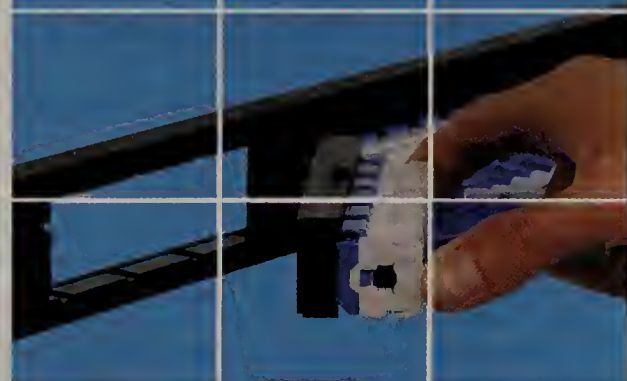
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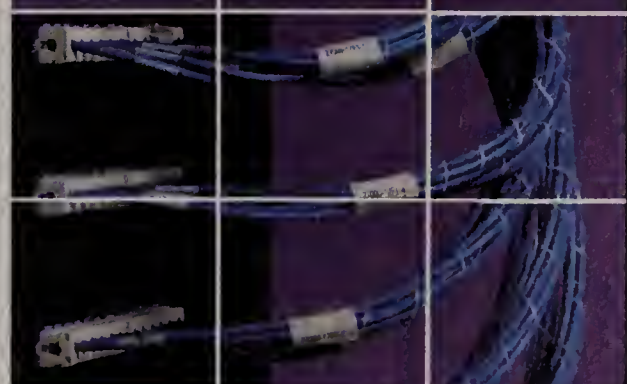
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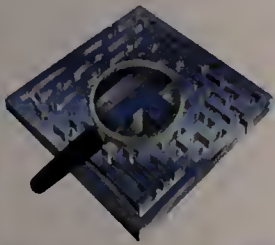
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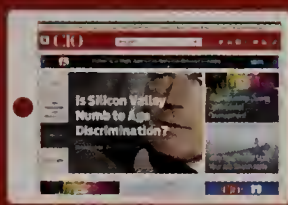


Wicked Awesome Wi-Fi

Boston's Fenway Park is lined with plaques, statues and memorabilia commemorating its 103 years as the home of the Red Sox. But the team can't live in the past when it comes to hosting today's tech-savvy fans. So the Red Sox IT group recently carried out a major expansion of ballpark Wi-Fi. "Our real goal here is to leverage some of the information from fans so we can start to create a much greater experience," says Brian Shield, vice president of IT for the Red Sox. To avoid spoiling the look of Major League Baseball's oldest ballpark, the tech team hid Wi-Fi access points on the sponsor signs above the Green Monster, as the left-field wall is known, on columns in seating areas and in other walls surrounding the field (painting them Fenway green to blend in). The new network has 481 APs providing coverage throughout the park. The Wi-Fi project ran in conjunction with completion of the team's new "fan data warehouse," where data from each Wi-Fi registration is stored along with other mobile usage and customer behavior data. Next up: mobile reports of wait times for bathrooms and concession stands. As Sox fans might say, "Wicked awesome."

—Lauren Brousell

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